LOW-COST SMART INDOOR GREENHOUSE FOR URBAN FARMING

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Abstract

Currently, people want to take control of what they consume as well as the local authorities pursue to implement measures to improve sustainability, food security, and living standards. Indoor urban farming initiatives provide an opportunity to grow their own and obtain fresher food with fewer transportation emissions, likewise, it is a strategy to lift people out of food poverty, reduce environmental impact since the use of herbicides and pesticides is minimal and helps to reduce food waste. However, factors such as the time dedicated to the cultivation of plants, and the adequate space inside their houses prevents them from carrying out this activity. This project presents the design of a low cost smart indoor greenhouse design to cultivate herbs and vegetables with minimum human intervention monitored by a web application. The prototype has three systems to control and monitor the main variables involved in the plant's growth such as soil moisture, temperature, and solar light intensity. Likewise, it is suitable for a home with little space and it is easily installable, has low energy consumption, and is cost-efficient. © 2021, Springer Nature Switzerland AG.

Keywords

Indoor greenhouse; Smart greenhouse; Urban farming